# General

## Guideline Title

ACR Appropriateness Criteria® ovarian cancer screening.

## Bibliographic Source(s)

Pandharipande PV, Harvey HB, Javitt MC, Glanc P, Bennett GL, Brown DL, Dubinsky T, Harisinghani MG, Harris RD, Horowitz NS, Mitchell DG, Pannu HK, Podrasky AE, Shipp TD, Siegel CL, Simpson L, Wong-You-Cheong JJ, Zelop CM, Expert Panel on Womenâ€™s Imaging. ACR Appropriateness CriteriaÂ® ovarian cancer screening. [online publication]. Reston (VA): American College of Radiology (ACR); 2012. 6 p. [37 references]

## Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Brown DL, Andreotti RF, Lee SI, DeJesus Allison SO, Bennett GL, Dubinsky T, Glanc P, Horrow MM, Lev-Toaff AS, Horowitz NS, Podrasky AE, Scoutt LM, Zelop CM, Expert Panel on Women's Imaging. ACR Appropriateness Criteria® ovarian cancer screening. [online publication]. Reston (VA): American College of Radiology (ACR); 2009. 6 p.

# Recommendations

## Major Recommendations

ACR Appropriateness Criteria®

Clinical Condition: Ovarian Cancer Screening

Variant 1: Premenopausal or postmenopausal female: average risk.

| Radiologic Procedure | Rating | Comments | RRL* |
|---|---|---|---|
| MRI pelvis without and with contrast | 2 | | O |
| US pelvis transvaginal with or without Doppler | 2 | | O |
| US pelvis transabdominal with or without Doppler | 1 | | O |
| CT abdomen and pelvis without | 2 | | O |

Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate

*Relative

| Radiologic Procedure | Rating | Comments | RRL* |
|---|---|---|---|
| contrast | | | |
| CT abdomen and pelvis with contrast | 1 | | |
| CT abdomen and pelvis without and with contrast | 1 | | |
| MRI pelvis without contrast | 1 | | O |
| FDG-PET/CT whole body | 1 | | |
| Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate | | | *Relative Radiation Level |

Note: Abbreviations used in the tables are listed at the end of the "Major Recommendations" field.

Variant 2: Premenopausal or postmenopausal female: high risk (includes personal history or family history or known or suspected genetic predisposition or elevated CA-125).

| Radiologic Procedure | Rating | Comments | RRL* |
|---|---|---|---|
| US pelvis transvaginal with or without Doppler | 6 | | O |
| US pelvis transabdominal with or without Doppler | 4 | | O |
| MRI pelvis without and with contrast | 2 | | O |
| CT abdomen and pelvis without contrast | 1 | | |
| CT abdomen and pelvis with contrast | 1 | | |
| CT abdomen and pelvis without and with contrast | 1 | | |
| MRI pelvis without contrast | 1 | | O |
| FDG-PET/CT whole body | 1 | | |
| Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate | | | *Relative Radiation |

| Radiologic Procedure | Rating | Comments | RRL* |
|---|---|---|---|
| | | | |
| Rating Scale: 1,2,3 Usually not appropriate; 4,5,6 May be appropriate; 7,8,9 Usually appropriate | | | *Relative Radiation Level |

Note: Abbreviations used in the tables are listed at the end of the "Major Recommendations" field.

Summary of Literature Review

Introduction/Background

There has been much debate about the role of imaging in ovarian cancer screening based on currently available evidence. Ovarian cancer is frequently fatal, commonly discovered only after its widespread dissemination. Based on National Cancer Institute Surveillance, Epidemiology, and End Results (SEER) registry data, metastatic disease is present in 63% of cases at the time of diagnosis and is associated with a low 5-year relative survival rate of 27%. Only 15% of women have organ-confined disease at the time of detection. These women have a substantially higher 5-year relative survival rate (92%), suggesting that screening could be of benefit if aggressive cancers can be reliably detected at earlier stages. To evaluate current evidence on this topic, the Expert Panel members considered: 1) the burden of ovarian cancer and salient risk factors; 2) new knowledge of its natural history; 3) prerequisites for effective screening tools; and 4) published clinical trial and observational data. They found no clear evidence to support screening women of average risk (no personal history, no family history, no known or suspected genetic predisposition, and no elevated cancer antigen [CA]-125). However, they provide an update on areas of investigation that may support a future role for imaging and serum biomarkers in special cases.

Epidemiology and Risk Factors

Ovarian cancer has a low associated disease prevalence, but a high mortality rate. Among U.S. women, it ranks as the 9th most common cause of new cancer diagnoses, and the 5th most common cause of cancer deaths – it is projected to have accounted for 21,990 new cancer diagnoses and 15,460 cancer deaths in 2011. Primary risk factors include: presence of *BRCA1* or *BRCA2* mutations; strong family history (e.g., 1st degree relative, particularly if premenopausal at the time of diagnosis); nulliparity, lack of breastfeeding, and lack of hormonal contraception use; and postmenopausal status. Among all risk factors, a genetic predisposition is associated with the highest increase in cancer risk. A recent meta-analysis projected that 20-year-old *BRCA1* and *BRCA2* mutation carriers have 39% and 16% mean cumulative risks of developing ovarian cancer, respectively, by age 70.

Natural History

Cancers that clinically fall under the umbrella of ovarian cancer are now known to have heterogeneous natural histories and tissue origins. Five primary subtypes describe most epithelial ovarian cancers: serous, mucinous, clear cell, endometrioid, and transitional cell. Serous cancers represent the majority of all ovarian cancers, are commonly diagnosed at late stages, and account for most ovarian cancer deaths. Importantly, low-grade and high-grade serous tumors do not define a spectrum, but instead reflect distinct tumor biologies. Current evidence suggests that some benign serous cystadenomas may progress to low-grade serous cancers (the less common of the two) in an adenoma-carcinoma sequence. High-grade serous cancers are thought to arise directly from surface epithelium. They commonly demonstrate TP53 mutations and are also associated with *BRCA1* and *BRCA2* mutations. Many high-grade "ovarian" serous cancers are now thought to be extraovarian in origin, arising instead from the distal fallopian tubes (fimbria), as initially suggested by histologic evaluation of specimens from *BRCA* mutation carriers who have undergone prophylactic salpingo-oophrectomy.

By mathematically modeling the behavior of ovarian cancers in hypothetical populations of *BRCA* mutation carriers and average-risk patients, researchers have gained insight into their natural history and have investigated a potential role for screening. Based on their findings, current screening tools are expected to have low effectiveness because of the tendency for small cancers to spread rapidly. When modeling serous cancers in high-risk patients, researchers projected that an annual screening tool for ovarian cancer would need to detect tumors as small as 0.5 cm in diameter in order to achieve a 50% mortality reduction.

Prerequisites for an Effective Screening Test for Ovarian Cancer

*Test Performance Characteristics*

Positive predictive value (PPV), defined as the number of true-positive cases divided by the total number of test-positive cases, is a critically

important metric to consider in the context of ovarian cancer screening. Unlike the sensitivity and specificity of a diagnostic test, PPV incorporates both test performance and disease prevalence. A minimum PPV of 10% has been suggested as necessary for an ovarian cancer screening tool. This implies that at least one cancer should be diagnosed in every 10 patients who undergo salpingo-oopherectomy for suspicion of malignancy. Given the low prevalence of ovarian cancer, very high specificity is needed for a successful screening tool. At an assumed prevalence of one case per 2,500 postmenopausal women per year, a test with perfect sensitivity (100%) would require a specificity of 99.6% to achieve a 10% PPV, and a test with 50% sensitivity would require an even higher specificity of 99.8%.

*Mortality Reduction*

Mortality reduction is also essential to substantiate ovarian cancer screening, and it should be demonstrated in randomized controlled trials to avoid biases typical of single-arm or other observational studies. Importantly, accomplishing a shift in stage distribution (e.g., demonstrating that cancers of an earlier stage can be detected if screening is introduced), is necessary but not adequate to demonstrate the effectiveness of screening. This is because screening may simply detect a greater proportion of early-stage cancers that are indolent, thereby accomplishing a stage shift that does not meaningfully affect survival.

Salient Published Evidence

Most of the peer-reviewed imaging literature to date has dealt with pelvic ultrasound (US). Other cross-sectional imaging methods, including magnetic resonance imaging (MRI), positron emission tomography (PET), computed tomography (CT), and PET/CT, have no known or foreseeable role in screening. Attention has also been directed to the role of CA-125 (a widely known serum tumor biomarker) for screening, either alone or in combination with imaging (e.g., US and CA-125).

*Pilot United Kingdom Trial*

In 1999, a group of researchers published a pilot randomized controlled trial in which postmenopausal women were randomized to a control group (n=10,977) or to annual screening with CA-125 (n=10,958) for 3 years. Patients with elevated CA-125 were referred to US, which was initially done transabdominally and then transvaginally when this approach became more widely available. At US, ovaries ≥8.8 mL were designated as abnormal, whereas ovaries with normal volume but abnormal morphology were considered equivocal and followed with subsequent US. Women with elevated CA-125 and abnormal US were referred for surgical consideration. An 86% compliance rate with at least one screen was achieved, establishing screening feasibility. PPV was reported to be 21%, suggesting the potential viability of a multimodal screening method. This trial substantiated resources for subsequent, larger randomized controlled trials.

*Shizuoka District (Japan) Trial*

In 2008, a group of authors published a randomized controlled trial in which postmenopausal women were randomized to a control group (n=40,799) or to five screening rounds of CA-125 and US (n=41,688). US was predominantly performed using a transvaginal approach. At US, ovaries were considered suspicious for malignancy if ovarian size was >4 cm and a complex morphology was apparent. In the screening group, further management ranged from annual follow-up to surgical intervention, depending on combined test results. Salient trial findings were twofold. First, ovarian cancer prevalence was lower (0.31/1,000) than in an expected United States population. Second, a statistically significant shift in stage distribution was not achieved.

*United Kingdom Collaborative Trial of Ovarian Cancer Screening (UKCTOCS) – Prevalence Screen*

In 2009, a group of authors published results of the first screen from the UKCTOCS, a randomized controlled trial in which postmenopausal women were randomized to a control group (n=101,359); multimodal screening (e.g., annual CA-125 with transvaginal US as a follow-up test) (n=50,640); or annual transvaginal US alone (n=50,639). US results were considered abnormal if ovaries demonstrated a complex morphology or had simple cysts >60 mL, or if ascites was present. Rather than using standard single cutoffs for CA-125 positivity, CA-125 results were designated based on the "risk of ovarian cancer algorithm," described in earlier work. This algorithm incorporates patient age and CA-125 trends to triage further management, and is expected to improve CA-125 test performance, particularly its PPV and specificity. In the prevalence screen, the authors found that the multimodal strategy was superior to US alone, resulting in sensitivity, specificity, and PPV values of 89.4%, 99.8%, and 43.3% compared to 84.9%, 98.2%, and 5.3%, respectively. Whether these test performance characteristics can influence stage distribution or cancer-specific mortality remains to be seen, and will be determined when final study outcomes are reported.

*United States Prostate, Lung, Colorectal, and Ovarian (PLCO) Cancer Screening Trial*

In 2011, one group of researchers of the PLCO project team published results of the largest completed randomized controlled trial to date, in which postmenopausal women were randomized to a control group (n=39,111) or annual screening (n=39,105) with CA-125 for 6 years and transvaginal US for 4 years. US results were considered abnormal if ovarian or ovarian cyst volume was >10 mL, or if intraovarian lesions harbored projections into cysts or mixed solid and cystic components. In 2009, another group of authors published results of the first four

screening rounds, demonstrating low PPV (range: 1%-1.3%) and a predominance of late-stage cancers detected. In the final analysis, the first group found no significant shift in stage distribution and no statistically significant reduction in cancer-specific mortality. False-positive results occurred in 3,285 women. Among this group, 1,080 (33%) underwent surgery for oophorectomy, 163 (15%) of whom had a major resulting complication. Importantly, this study was powered to detect a 35% mortality reduction – smaller reductions could not be reliably resolved. However, based on projections of uncertainty, at most an 18% relative mortality benefit of screening was considered possible.

*University of Kentucky Ovarian Cancer Screening Project*

In 2007, a group of investigators published results of a single-arm screening trial conducted at the University of Kentucky. The patient population was mixed in menopausal status and level of risk, including both postmenopausal women and premenopausal women with a family history of ovarian cancer. While the results of this study indicated a potential shift in stage distribution and mortality reduction, the study design (with no control group and with a mixed-risk population) was subject to known epidemiologic biases. As indicated above, PLCO randomized controlled trial results reported subsequently did not reproduce the findings of this single-arm study.

*Biomarkers*

In addition to CA-125, many serum biomarkers have been investigated as possible screening agents. For example, in one of the largest and most recent studies to date, the authors conducted a two-tiered analysis of a spectrum of candidate biomarkers. Promising biomarkers were first tested in "phase II" specimens (from symptomatic patients with known ovarian cancer). A subset was then tested in "phase III" specimens from the PLCO screening trial (from asymptomatic patients prior to cancer diagnosis). The highest performing biomarkers in phase II specimens were CA-125, HE-4, transthyretin, CA-15.3, and CA-72.4. When tested in phase III specimens, performance was retained for most of them up to 6 months prior to diagnosis, but decreased at earlier timepoints. CA-125 was the best performing biomarker. In general, there is increased interest in (1) further optimization of CA-125 as a biomarker and (2) additional serum biomarker investigation for early-stage ovarian cancer detection, particularly with a proteomic screening approach. However, with the exception of CA-125, there is currently insufficient evidence available for determining the value of biomarkers in population-level ovarian cancer screening.

High-Risk Populations – *BRCA1* and *BRCA2* Mutation Carriers and Patients with a Strong Family History

To the Expert Panel's knowledge, randomized controlled trials analogous to those in average-risk populations have not been conducted in high-risk populations. Several observational studies have been reported, all relatively small in sample size. None concluded that ovarian cancer screening with CA-125 and/or US was a promising approach. Despite higher reported PPV in some studies (expected with higher disease prevalence), aggressive serous cancers — frequently seen in high-risk patients — were typically detected at advanced stages despite screening. Further insights into the role of screening in high-risk patients will be gained from the UK Familial Ovarian Cancer Screening Study (UK FOCSS) (available at: http://www.instituteforwomenshealth.ucl.ac.uk/academic_research/gynaecologicalcancer/gcrc/ukfocss/ ), a large, prospective single-arm screening study for women with a strong family history or genetic risk. More than 5,000 women were to be screened with CA-125 (using the risk of ovarian cancer algorithm) and transvaginal US. UK FOCSS has completed recruitment and final study results are awaited.

A meta-analysis of studies published between 2002 and 2008 computed an 80% reduction in ovarian or fallopian tube cancer risk among high-risk patients who underwent prophylactic bilateral salpingo-oophrectomy. While studies used to perform this analysis are subject to known epidemiologic biases, prophylactic surgery remains recognized as the only effective means of risk reduction in high-risk patients. Women with known or suspected genetic risk factors for ovarian cancer should be strongly advised to seek genetic counseling. Moreover, given the success of prophylactic surgery in this setting, the American College of Obstetrics and Gynecology recommends that bilateral salpingo-oophrectomy be offered to all women with *BRCA1* or *BRCA2* mutations by 40 years of age.

Summary

- Ovarian cancer screening is not recommended in average-risk populations. Current randomized controlled trial results do not indicate a favorable shift in ovarian cancer stage distribution or in cancer-specific mortality reduction. Results from the largest ovarian cancer screening study to date — the UKCTOCS — are awaited and should provide additional information regarding the effectiveness of screening in average-risk patients.
- Women with a known or probable genetic predisposition for ovarian cancer should be counseled that even in high-risk settings there is no evidence to support the effectiveness of ovarian cancer screening. Women at high risk should be advised to seek genetic counseling. Prophylactic salpingo-oophrectomy can substantially reduce ovarian cancer risks, and it should be offered to patients who are *BRCA1* and *BRCA2* mutation carriers.
- Primary challenges for ovarian cancer screening tools are twofold. First, the failure to achieve a clear shift in stage distribution in screening studies to date suggests that the window between cancer development and dissemination is short, limiting the opportunity for early-stage

detection. Second, very high specificity is required to reasonably avoid unnecessary surgeries and complications at the population level. These challenges make current imaging techniques poor candidate "stand-alone" screening tools. Future serum biomarker approaches, with or without concurrent pelvic US, are more likely to overcome these challenges. Such approaches are under active investigation and merit further research investment, particularly in high-risk patients.

Abbreviations

- CT, computed tomography
- FDG-PET, fluorodeoxyglucose-positron emission tomography
- MRI, magnetic resonance imaging
- US, ultrasound

Relative Radiation Level Designations

| Relative Radiation Level* | Adult Effective Dose Estimate Range | Pediatric Effective Dose Estimate Range |
|---|---|---|
| O | 0 mSv | 0 mSv |
| | <0.1 mSv | <0.03 mSv |
| | 0.1-1 mSv | 0.03-0.3 mSv |
| | 1-10 mSv | 0.3-3 mSv |
| | 10-30 mSv | 3-10 mSv |
| | 30-100 mSv | 10-30 mSv |
| *RRL assignments for some of the examinations cannot be made, because the actual patient doses in these procedures vary as a function of a number of factors (e.g., region of the body exposed to ionizing radiation, the imaging guidance that is used). The RRLs for these examinations are designated as “Varies.” | | |

## Clinical Algorithm(s)

Algorithms were not developed from criteria guidelines.

# Scope

## Disease/Condition(s)

Ovarian cancer

## Guideline Category

Risk Assessment

Screening

## Clinical Specialty

Family Practice

Internal Medicine

Obstetrics and Gynecology

Oncology

Radiology

## Intended Users

Health Plans

Hospitals

Managed Care Organizations

Physicians

Utilization Management

## Guideline Objective(s)

To evaluate the appropriateness of radiologic procedures for screening for ovarian cancer

## Target Population

Women at risk for developing ovarian cancer

## Interventions and Practices Considered

1. Magnetic resonance imaging (MRI) pelvis
    - Without and with contrast
    - Without contrast
2. Ultrasound (US) pelvis
    - Transabdominal with or without Doppler
    - Transvaginal with or without Doppler
3. Computed tomography (CT) abdomen and pelvis
    - Without contrast
    - With contrast
    - Without and with contrast
4. Fluorodeoxyglucose-positron emission tomography (FDG-PET) whole body

## Major Outcomes Considered

- Utility of radiologic examinations in screening for ovarian cancer
- Survival rates and mortality rates

# Methodology

## Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

## Description of Methods Used to Collect/Select the Evidence

Literature Search Procedure

The Medline literature search is based on keywords provided by the topic author. The two general classes of keywords are those related to the condition (e.g., ankle pain, fever) and those that describe the diagnostic or therapeutic intervention of interest (e.g., mammography, MRI).

The search terms and parameters are manipulated to produce the most relevant, current evidence to address the American College of Radiology Appropriateness Criteria (ACR AC) topic being reviewed or developed. Combining the clinical conditions and diagnostic modalities or therapeutic procedures narrows the search to be relevant to the topic. Exploding the term "diagnostic imaging" captures relevant results for diagnostic topics.

The following criteria/limits are used in the searches.

1. Articles that have abstracts available and are concerned with humans.
2. Restrict the search to the year prior to the last topic update or in some cases the author of the topic may specify which year range to use in the search. For new topics, the year range is restricted to the last 5 years unless the topic author provides other instructions.
3. May restrict the search to Adults only or Pediatrics only.
4. Articles consisting of only summaries or case reports are often excluded from final results.

The search strategy may be revised to improve the output as needed.

## Number of Source Documents

The total number of source documents identified as the result of the literature search is not known.

## Methods Used to Assess the Quality and Strength of the Evidence

Weighting According to a Rating Scheme (Scheme Given)

## Rating Scheme for the Strength of the Evidence

Strength of Evidence Key

Category 1 - The conclusions of the study are valid and strongly supported by study design, analysis, and results.

Category 2 - The conclusions of the study are likely valid, but study design does not permit certainty.

Category 3 - The conclusions of the study may be valid, but the evidence supporting the conclusions is inconclusive or equivocal.

Category 4 - The conclusions of the study may not be valid because the evidence may not be reliable given the study design or analysis.

## Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review with Evidence Tables

## Description of the Methods Used to Analyze the Evidence

The topic author drafts or revises the narrative text summarizing the evidence found in the literature. American College of Radiology (ACR) staff draft an evidence table based on the analysis of the selected literature. These tables rate the strength of the evidence for all articles included in the narrative text.

The expert panel reviews the narrative text, evidence table, and the supporting literature for each of the topic-variant combinations and assigns an appropriateness rating for each procedure listed in the table. Each individual panel member forms his/her own opinion based on his/her interpretation of the available evidence.

More information about the evidence table development process can be found in the ACR Appropriateness Criteria® Evidence Table

Development document (see the "Availability of Companion Documents" field).

## Methods Used to Formulate the Recommendations

Expert Consensus (Delphi)

## Description of Methods Used to Formulate the Recommendations

Modified Delphi Technique

The appropriateness ratings for each of the procedures included in the Appropriateness Criteria topics are determined using a modified Delphi methodology. A series of surveys are conducted to elicit each panelist's expert interpretation of the evidence, based on the available data, regarding the appropriateness of an imaging or therapeutic procedure for a specific clinical scenario. American College of Radiology (ACR) staff distributes surveys to the panelists along with the evidence table and narrative. Each panelist interprets the available evidence and rates each procedure. The surveys are completed by panelists without consulting other panelists. The ratings are a scale between 1 and 9, which is further divided into three categories: 1, 2, or 3 is defined as "usually not appropriate"; 4, 5, or 6 is defined as "may be appropriate"; and 7, 8, or 9 is defined as "usually appropriate." Each panel member assigns one rating for each procedure per survey round. The surveys are collected and the results are tabulated, de-identified and redistributed after each round. A maximum of three rounds are conducted. The modified Delphi technique enables each panelist to express individual interpretations of the evidence and his or her expert opinion without excessive bias from fellow panelists in a simple, standardized and economical process.

Consensus among the panel members must be achieved to determine the final rating for each procedure. Consensus is defined as eighty percent (80%) agreement within a rating category. The final rating is determined by the median of all the ratings once consensus has been reached. Up to three rating rounds are conducted to achieve consensus.

If consensus is not reached, the panel is convened by conference call. The strengths and weaknesses of each imaging procedure that has not reached consensus are discussed and a final rating is proposed. If the panelists on the call agree, the rating is accepted as the panel's consensus. The document is circulated to all the panelists to make the final determination. If consensus cannot be reached on the call or when the document is circulated, "No consensus" appears in the rating column and the reasons for this decision are added to the comment sections.

## Rating Scheme for the Strength of the Recommendations

Not applicable

## Cost Analysis

A formal cost analysis was not performed and published cost analyses were not reviewed.

## Method of Guideline Validation

Internal Peer Review

## Description of Method of Guideline Validation

Criteria developed by the Expert Panels are reviewed by the American College of Radiology (ACR) Committee on Appropriateness Criteria.

# Evidence Supporting the Recommendations

## Type of Evidence Supporting the Recommendations

The recommendations are based on analysis of the current literature and expert panel consensus.

# Benefits/Harms of Implementing the Guideline Recommendations

## Potential Benefits

Selection of appropriate radiologic imaging procedures for screening of ovarian cancer

## Potential Harms

False-positive results can occur with transvaginal ultrasound and CA-125 tests.

Relative Radiation Level (RRL)

Potential adverse health effects associated with radiation exposure are an important factor to consider when selecting the appropriate imaging procedure. Because there is a wide range of radiation exposures associated with different diagnostic procedures, a RRL indication has been included for each imaging examination. The RRLs are based on effective dose, which is a radiation dose quantity that is used to estimate population total radiation risk associated with an imaging procedure. Patients in the pediatric age group are at inherently higher risk from exposure, both because of organ sensitivity and longer life expectancy (relevant to the long latency that appears to accompany radiation exposure). For these reasons, the RRL dose estimate ranges for pediatric examinations are lower as compared to those specified for adults. Additional information regarding radiation dose assessment for imaging examinations can be found in the American College of Radiology (ACR) Appropriateness Criteria® Radiation Dose Assessment Introduction document (see the "Availability of Companion Documents" field).

# Qualifying Statements

## Qualifying Statements

The American College of Radiology (ACR) Committee on Appropriateness Criteria and its expert panels have developed criteria for determining appropriate imaging examinations for diagnosis and treatment of specified medical condition(s). These criteria are intended to guide radiologists, radiation oncologists, and referring physicians in making decisions regarding radiologic imaging and treatment. Generally, the complexity and severity of a patient's clinical condition should dictate the selection of appropriate imaging procedures or treatments. Only those examinations generally used for evaluation of the patient's condition are ranked. Other imaging studies necessary to evaluate other co-existent diseases or other medical consequences of this condition are not considered in this document. The availability of equipment or personnel may influence the selection of appropriate imaging procedures or treatments. Imaging techniques classified as investigational by the U.S. Food and Drug Administration (FDA) have not been considered in developing these criteria; however, study of new equipment and applications should be encouraged. The ultimate decision regarding the appropriateness of any specific radiologic examination or treatment must be made by the referring physician and radiologist in light of all the circumstances presented in an individual examination.

# Implementation of the Guideline

## Description of Implementation Strategy

An implementation strategy was not provided.

# Institute of Medicine (IOM) National Healthcare Quality Report Categories

## IOM Care Need

Staying Healthy

## IOM Domain

Effectiveness

# Identifying Information and Availability

## Bibliographic Source(s)

Pandharipande PV, Harvey HB, Javitt MC, Glanc P, Bennett GL, Brown DL, Dubinsky T, Harisinghani MG, Harris RD, Horowitz NS, Mitchell DG, Pannu HK, Podrasky AE, Shipp TD, Siegel CL, Simpson L, Wong-You-Cheong JJ, Zelop CM, Expert Panel on Womenâ€™s Imaging. ACR Appropriateness CriteriaÂ® ovarian cancer screening. [online publication]. Reston (VA): American College of Radiology (ACR); 2012. 6 p. [37 references]

## Adaptation

Not applicable: The guideline was not adapted from another source.

## Date Released

1996 (revised 2012)

## Guideline Developer(s)

American College of Radiology - Medical Specialty Society

## Source(s) of Funding

The American College of Radiology (ACR) provided the funding and the resources for these ACR Appropriateness Criteria®.

## Guideline Committee

Committee on Appropriateness Criteria, Expert Panel on Women's Imaging

## Composition of Group That Authored the Guideline

*Panel Members*: Pari V. Pandharipande, MD, MPH (*Principal Author*); H. Benjamin Harvey, MD, JD (*Research Author*); Marcia C. Javitt, MD (*Panel Chair*); Phyllis Glanc, MD (*Panel Vice-Chair*); Genevieve L. Bennett, MD; Douglas L. Brown, MD; Theodore Dubinsky, MD; Mukesh G. Harisinghani, MD; Robert D. Harris, MD, MPH; Neil S. Horowitz, MD; Donald G. Mitchell, MD; Harpreet K. Pannu, MD; Ann E. Podrasky, MD; Thomas D. Shipp, MD; Cary Lynn Siegel, MD; Lynn Simpson, MD; Jade J. Wong-You-Cheong, MD; Carolyn M. Zelop, MD

## Financial Disclosures/Conflicts of Interest

Not stated

## Guideline Status

This is the current release of the guideline.

This guideline updates a previous version: Brown DL, Andreotti RF, Lee SI, DeJesus Allison SO, Bennett GL, Dubinsky T, Glanc P, Horrow MM, Lev-Toaff AS, Horowitz NS, Podrasky AE, Scoutt LM, Zelop CM, Expert Panel on Women's Imaging. ACR Appropriateness Criteria® ovarian cancer screening. [online publication]. Reston (VA): American College of Radiology (ACR); 2009. 6 p.

## Guideline Availability

Electronic copies: Available from the American College of Radiology (ACR) Web site.

Print copies: Available from the American College of Radiology, 1891 Preston White Drive, Reston, VA 20191. Telephone: (703) 648-8900.

## Availability of Companion Documents

The following are available:

- ACR Appropriateness Criteria®. Overview. Reston (VA): American College of Radiology; 2 p. Electronic copies: Available in Portable Document Format (PDF) from the American College of Radiology (ACR) Web site.
- ACR Appropriateness Criteria®. Literature search process. Reston (VA): American College of Radiology; 1 p. Electronic copies: Available in PDF from the ACR Web site.
- ACR Appropriateness Criteria®. Evidence table development – diagnostic studies. Reston (VA): American College of Radiology; 2013 Nov. 3 p. Electronic copies: Available in PDF from the ACR Web site.
- ACR Appropriateness Criteria®. Radiation dose assessment introduction. Reston (VA): American College of Radiology; 3 p. Electronic copies: Available in PDF from the ACR Web site.
- ACR Appropriateness Criteria®. Manual on contrast media. Reston (VA): American College of Radiology; 90 p. Electronic copies: Available in PDF from the ACR Web site.
- ACR Appropriateness Criteria®. Procedure information. Reston (VA): American College of Radiology; 1 p. Electronic copies: Available in PDF from the ACR Web site.
- ACR Appropriateness Criteria® ovarian cancer screening. Evidence table. Reston (VA): American College of Radiology; 2012. 17 p. Electronic copies: Available from the ACR Web site.

## Patient Resources

None available

## NGC Status

This NGC summary was completed by ECRI on February 10, 2006. This NGC summary was updated by ECRI Institute on August 11, 2009. This NGC summary was updated by ECRI Institute on December 19, 2010. This NGC summary was updated by ECRI Institute on November 14, 2012.

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